Code: DC15 **Subject: SOFTWARE ENGINEERING**
Time: 3 Hours **Max. Marks: 100**

DECEMBER 2010

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **The answer sheet for the Q.1 will be collected by the invigilator after half an hour of the commencement of the examination.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 Choose the correct or best alternative in the following: **(2x10)**

a. Program is defined as

(A) Subset of software **(B)** Superset of software
(C) Software **(D)** None of the above

b. CASE tool is

(A) Computer Aided Software Engineering
(B) Component Aided Software Engineering
(C) Constructive Aided Software Engineering
(D) Computer Analysis Software Engineering

c. Which of the following is not a software life cycle model?

(A) Waterfall model **(B)** Spiral model
(C) Prototyping model **(D)** Capability maturity model

d. If the requirements are frequently changing, which then of the following model is to be selected?

(A) Waterfall model **(B)** Prototyping model
(C) RAD model **(D)** Iterative enhancement model

e. Outcome of requirements specification phase is

(A) Design document
(B) Software requirements specification
(C) Test document
(D) None of the above

f. DFD stands for

(A) Data flow design **(B)** Descriptive functional design
(C) Data flow diagram **(D)** None of the above

g. COCOMO-II estimation model is based on

(A) Complex approach **(B)** Algorathmic approach
(C) Bottom up approach **(D)** Top down approach

h. The extent to which different modules are dependent on each other is termed as

(A) Coupling **(B)** Cohesion
(C) Modularity **(D)** Stability

i. The most desirable form of cohesion is

(A) Logical cohesion **(B)** Procedural cohesion
(C) Functional cohesion **(D)** Temporal cohesion

j. Which level of CMM is for process control?

(A) Initial **(B)** Repeatable
(C) Defined **(D)** Optimizing

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Differentiate between Program and Software. **(4)**

b. Compare bottom-up and top-down software design techniques. Give an example. **(4)**

c. Explain the following:-
(i) Project monitoring plans.
(ii) Mutation testing.
(iii) Structured programming.
(iv) Software documentation. **(8)**

Q.3 a. Explain SDLC. Why is it important to adhere to a life cycle model while developing a large software product? **(8)**

b. Define and explain software process.Explain model used in improving a software process. **(8)**

Q.4 a. Define SRS. What are the characteristics of a good SRS? **(8)**

b. Explain the following:-
(i) Data Flow Diagram **(4)**
(ii) Data Dictionary **(4)**

Q.5 a. Explain basic COCOMO. Compare various modes of COCOMO. **(8)**

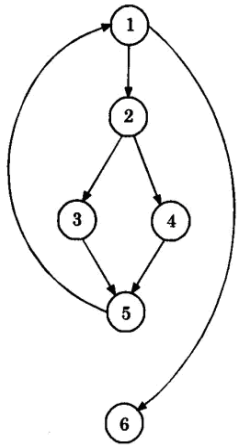
b. Suppose that a project was estimated to be 400 KLOC. Calculate the effort and development time for each of the three modes namely organic, semidetached and embedded. **(8)**

Q.6 a. What do you mean by software design? Explain various objectives and techniques used in system design. **(8)**

b. Explain various steps used to analyze and design an object oriented system. Give an example for illustration. **(8)**

Q.7 a. Define Verification. Explain various verification methods. **(8)**

b. Define metric. Explain Cyclomatic Complexity metric. Compute Cyclomatic Complexity of the following control flow graph **(8)**



Q.8 a. Differentiate the following:-
(i) Verification and Validation **(4)**
(ii) Black Box Testing and White Box Testing **(4)**

b. What do you mean by the term debugging? Compare various debugging techniques. **(8)**

Q.9 a. Define software maintenance. Explain various types of Software maintenance models. **(8)**

b. Define and explain Reverse Engineering and re-engineering in detail. Give an example. **(8)**